

Oral History Program: Biographical Notes

Arthur Ernest Bishop OA (1917 - 2006)

Mechanical Engineer

- Birth & Family:** Born Roseville NSW 24 October 1917, Married, 4 children
- Education:** Roseville Primary School
Completed Leaving Certificate North Sydney Boys' High School 1934.
- Qualifications:** Apprentice Fitter and Turner
Mechanical Engineering Diploma (Hons), Sydney Technical College Ultimo 1935 – 1939
- Memberships:** Associate Member of the Society of Automotive Engineers.
Fellow of the Institute of Mechanical Engineers.
Foundation Member of the Academy of Design.
Fellow of the Australian Academy of Technological Sciences.
- IEAust?**
- Awards:** The J.E. Batchelor Award 1972, from Society of Automotive Engineers
The Rodda Award 1981, from Society of Automotive Engineers
A.G.M. Mitchell Medal 1982, from Institution on Engineers, Australia
Election as Honorary Fellow of the Institution of Engineers Australia, 1983
Order of Australia 1984
Engineering Excellence Award 1984, from Institution of Engineers, Australia
The Rotary Award 1987, from Rotary District 968
Elected as a Fellow of the Australian Academy of Technological Sciences, 1987
High Commendation in the Rolls Royce – Qantas Award for Engineering Excellence 1988, from The Warren Centre, University of Sydney
25 Years Membership 1988, from Society of Automotive Engineers
Finalist BHP Award for Pursuit of Excellence, 1988
Engineering Excellence Award – winner 'Research' category 1991, from Institution of Engineers, Australia
Engineering Excellence Award – winner 'Bradfield Award' category 1991, from Institution of Engineers, Australia
National Engineering Excellence Awards – Highly Commended 'Engineering Products' category 1992, from Institution of Engineers, Australia.
- Work History:** After completing the Leaving Certificate in 1934, Bishop took an apprenticeship in automotive component parts and at the same time commenced a diploma in mechanical engineering at Sydney Technical College at Ultimo. Bishop's cousin had founded E.G Bishop Pty Ltd and it was there that Bishop gained experience as a precision manufacturer in automotive components for two years. His main work was on steering gear components.

Bishop served out his apprenticeship at C.C. Engineering Pty Ltd designing special purpose machinery.

In 1939 Bishop joined Standard Telephones & Cables, Mascot. As the war drew closer he was involved in the design of mechanical aspects of radio and transmitter equipment, including re-designing equipment to Australian standards from original United Kingdom designs.

In November 1940 he joined the Department of Aircraft Production to work on a project making aircraft landing gear in Australia. Bishop also worked on design and production of test equipment including a drop test machine which simulated the landing of a plane under extreme conditions; in 1941 Bishop was appointed Chief Engineer. In 1942 and 1943 Bishop worked on a shimmy damper to prevent shimmy or violent instability during take off and landing of fighter aircraft. Bishop's team at National Springs, a division of Dept of Aircraft Production, proceeded to design landing gear to cater to the shimmy problem and at the same time designed a landing gear which was able to retract the tail wheel to prevent a blind spot to the rear gunners. In 1944 Bishop went to UK at the request of the Military Aircraft Production to submit designs to the aircraft manufacturers A.V. Roe. He then spent a year in the UK working on various matters to do with landing gear.

In 1946, he and two partners formed L.B.L Products Pty Ltd, producing precision machines. Their company produced machines for making cabinets for refrigerators, building major components of tractors and machinery for Ford Motor Company in Geelong, as well as other special purpose machinery.

In 1949 Bishop, who had patented the shimmy damper granted a licence to Houdaille Hershey in the US, who undertook to manufacture dampers to be used on fifteen different types of aircraft for the US Navy and Airforce. From 1946 to 1954 Bishop developed and took out eight or nine separate patents on manufacture and design of automotive variable ratio steering.

In mid-1954 Bishop returned to Detroit and for two years worked in the US as licensor to Houdaille Hershey demonstrating the concept of variable ratio steering to General Motors, Ford and Chrysler. He became Director of Research and Development for a period of twelve months, engaged in a range of research and development work for automotive and military hardware projects.

In 1957 he established A. E. Bishop & Associates in Detroit, working on development of steering devices. In 1964 Bishop traveled to UK and through a licensee, Adwest, set up to manufacture steering gear for Jaguar, which continued on the Mark 10 Jaguar until 1970. In 1968 General Motors Australia displayed interest and agreed to adopt his steering. Bendix Technico manufactured the steering gear in their plant at Rockdale and eventually both General Motors and Ford adopted the steering in large cars.

In the mid 1970s Bishop demonstrated a new rack & pinion gear to Ford in USA but did not undertake licence until 1980; they continue to use much of Bishop's manufacturing machinery to the present day. Licences were also granted to several Japanese and Korean manufacturers. Bishop worked with Ford in the US to set up a division in Indianapolis engaging in manufacture of racks and valves. Every Ford motor vehicle used in US and Europe is using some form of the technology.

In 1985 he established and became Managing Director of A. E. Bishop Holdings, with staff in Sydney and Detroit. He established contracts for technology and tools to Ford U.S. and VAZ, Russia. During the 1990s Bishop Holdings worked mainly on three projects - machines

manufacture of steering gear, rotary valve engine development and the development of an automated people mover.

Bishop has been the recipient of many engineering awards and was awarded the Order of Australia in 1984.

Prepared by Tricia Willis, April 2006 from oral history interview conducted on 1.7.1997